on to the flames instead. The water in the reservoirs is necessary to our daily life; and moreover it had to be carefully saved in case of possible danger to the Observatory itself.

It would not be proper for me to close this account without a formal recognition of the really splendid service rendered to the Observatory by our astronomers and men. Every one on the Reservation was employed. Even the children made long trips carrying water and provisions; and the ladies with the servants saw to it that food was provided for those who were fighting the fire.

I beg leave to call your attention to the fact that experiences of this kind are not included in the lives of the members of the Faculties of the Universities of California. It is said that there were seven Professors of Sanskrit in the armies before Metz. I do not know how much they contributed to its fall, but I am sure that our astronomical corps has saved a vast deal of property to the University—including our pumping engine, all the buildings at the foot of the Observatory hill and many hundred acres of timbered land.

I am, dear Sir,

Very respectfully and truly yours,

EDWARD S. HOLDEN.

SCIENTIFIC VISITORS TO THE LICK OBSERVATORY.

We have lately had the pleasure of receiving at Mt. Hamilton Dr. DAVID STARR JORDAN, President of the Stanford University, in company with Professor GEORGE CHRYSTAL, F. R. S., who was making a flying visit to California.

Professor MICHELSON, of Clark University, Worcester, Massachusetts, is making a prolonged stay at the Observatory in order to try the experiments which are described in his paper in the present number of the *Publications*. E. S. H.

ATMOSPHERIC ABSORPTION OF THE PHOTOGRAPHIC RAYS.

In an investigation for determining the law of the atmospheric absorption of the photographic rays of light I have deduced the following empirical formula for expressing the brightness of a star at any zenith-distance in terms of the brightness which the star would have, theoretically, at the zenith-distance zero,

$$B = B_0 \left[1 - f \,.\, \tan\left(\left(\frac{z}{12} \right)^2 \right) \right]$$

In which B is the *observed* brightness corresponding to the zenith-distance z, expressed in degrees,

In which B_0 is the theoretical brightness corresponding to the zenith-distance zero,

In which f is a constant whose (mean) value is 0.6.

The quantity $\left(\frac{z}{12}\right)$ is to be considered as an abstract number, the square of which represents the number of degrees of which the trigonometrical tangent is required.

The observations were made on Mt. Hamilton by Prof. W. W. CAMPBELL in 1890, and by myself in 1889 and 1890. Those which I made in Cayenne are less reliable owing to the fact that the sky, during our stay of one month, was never wholly free from clouds. These clouds would form and disappear even while the exposures were being made. As it may be some time before the results in detail will be published, I have, at Professor HOLDEN'S request, written this preliminary note. J. M. SCHAEBERLE.

MT. HAMILTON, Aug. 24, 1891.